

NWS Form E-5 U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE MONTHLY REPORT OF HYDROLOGIC CONDITIONS	HYDROLOGIC SERVICE AREA: Pocatello, Idaho
	REPORT FOR: MONTH: November YEAR: 2015
TO: Hydrologic Operations Division, W/OH2 National Weather Service National Oceanic and Atmospheric Administration Silver Spring, Maryland 20910	SIGNATURE Corey Loveland Service Hydrologist
DATE: December 15, 2015	
When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts and hydrologic products issued (NWS Instruction 10-924).	



An X in this box indicates that no flooding has occurred for the month within this hydrologic service area.

Overview:

November brought much cooler temperatures across the Hydrologic Service Area (HSA). Above normal precipitation primarily fell across south central part of the state with mostly below normal precipitation elsewhere across the remainder of our HSA. Overall, mostly one half to one inch of precipitation fell across the HSA during the past month with most of the precipitation falling in Butte, Jefferson and Clark counties. Temperature departures from normal for November show that across the HSA, we ranged about minus one to minus 6 degrees F below normal with cooler temperatures dominating the Snake River plain. Mean average temperatures ranged from 21 to 37 degrees F across the HSA. The Minidoka Dam station had 5 days of average temperatures over 45 degrees F during November.

As far as the short-term 8 to 14 day Climate Prediction Center Outlook is concerned, the forecast is for a 33 to 40 percent chance of below normal temperatures across southern Idaho. Eastern Idaho continues with the wetter than normal pattern with a 50 percent chance of above normal precipitation across most of the state. The one-month forecast graphics are found below. For the three-month outlook, the temperatures are forecast to be warmer than normal in eastern Idaho; mostly ranging from 33 to 50 percent chance of above normal temperatures within the HSA. As for precipitation, the outlook is for mostly a 33 to 40 percent of below normal precipitation bringing a forecast of drier conditions across southern and eastern Idaho.

Of the data available for the month, the stations within the HSA reaching the highest 24-hour temperature was the Malta Aviation WBAN station reaching 69°F on the 2nd. The station (non-SNOTEL and non-RAWS) with the lowest recorded temperature was the Stanley COOP station at -25°F on November 28th. The highest recorded 24-hr precipitation (non-SNOTEL) occurred at the Shoshone 1 WNW COOP station where 0.90 inches fell on the 2nd. The highest recorded precipitation total (non-SNOTEL) occurred also at the Shoshone 1 WNW COOP where 2.71 total inches was recorded for the month. The Vienna Mine and Howell Canyon SNOTELs recorded 5.6 and 4.1 inches respectively of total precipitation for the month.

Reservoirs last month increased capacity overall by around 10% in the upper Snake River basin system (an increase of about 382 KAF occurred over the month and is currently sitting at 43% of capacity overall). Compared to last year at this time, it was about 59% of capacity. According to Natural Resources Conservation Service and U.S. Bureau of Reclamation reservoir data, the most notable decrease in storage capacity was Milner Reservoir currently at 65% of capacity. The most notable increase in storage capacity is the Mackay and

American Falls Reservoirs increasing percent capacity by 19 and 14% respectively. Island Park, Palisades and Little Wood Reservoirs all gained a noticeable amount of storage last month. Magic Reservoir has the lowest storage; at 43% of average and Jackson Lake is the fullest at 131% of average.

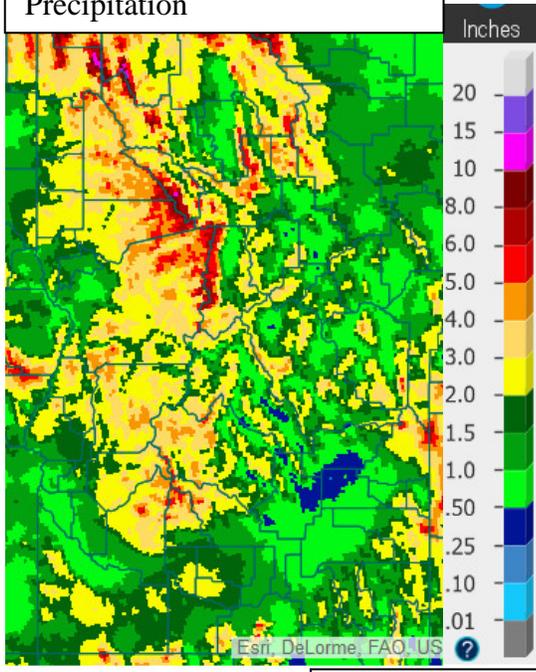
Current streamflow conditions in eastern Idaho are mostly near to below normal for monthly streamflows for the majority of the unregulated streams (see graphic below).

Drought conditions across eastern Idaho have improved slightly since last month's assessment. The Snake River plain has improved to the Abnormally Dry category. Currently, about 7 percent and 42 percent of the state is in Extreme and Severe drought respectively. The U.S. Seasonal Drought Outlook shows drought likely to develop along the Snake River plain and drought conditions to persist over much of the west (including the majority of ID).

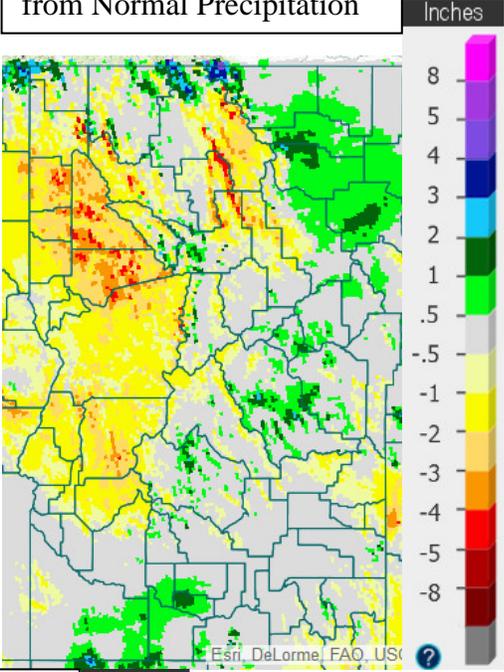
The Idaho NRCS Snow Survey December 1st Idaho Surface Water Supply Index (SWSI) was not available this month.

Precipitation:

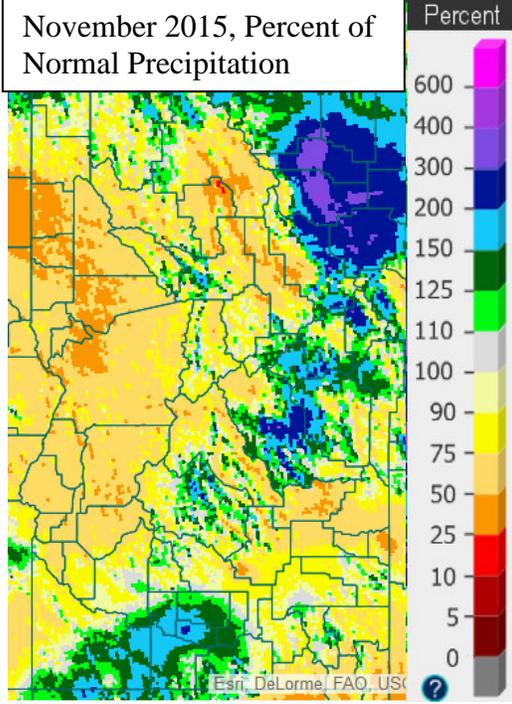
November 2015, Observed Precipitation



November 2015, Departure from Normal Precipitation

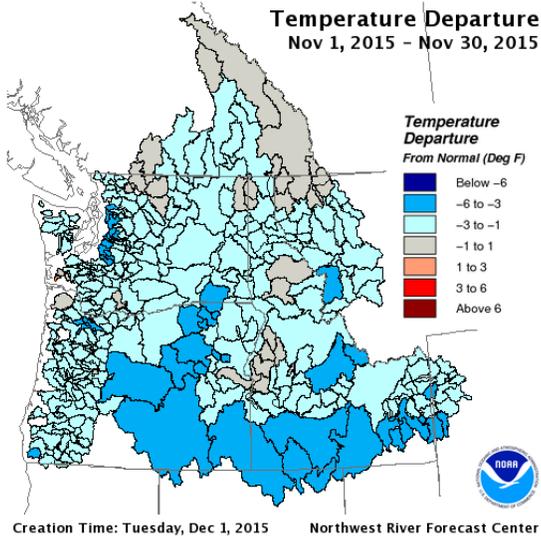


November 2015, Percent of Normal Precipitation

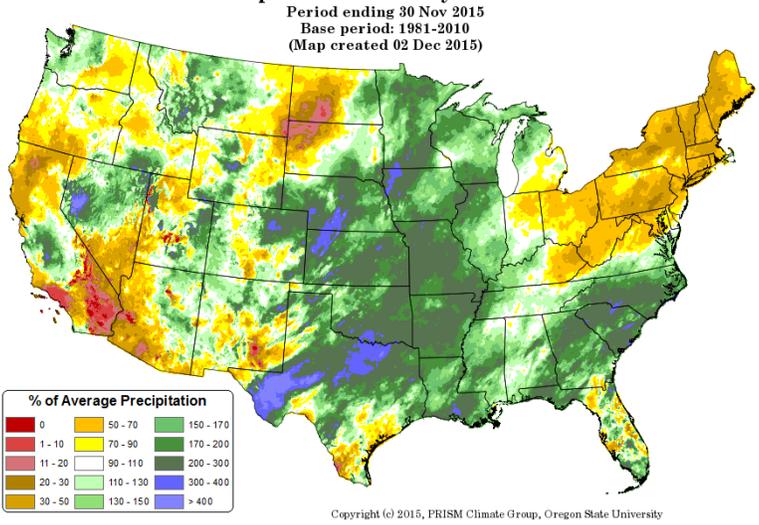


water.weather.gov/precip/#

Temperature Departure
Nov 1, 2015 - Nov 30, 2015



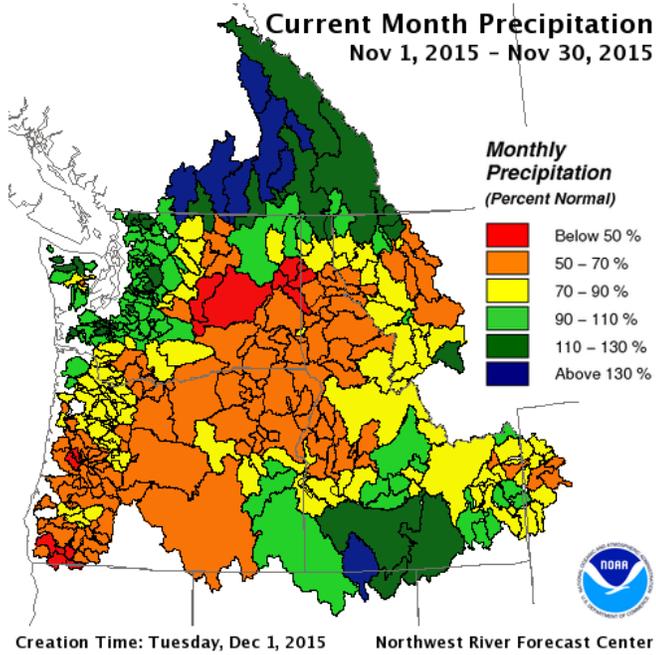
Total Precipitation Anomaly: November 2015



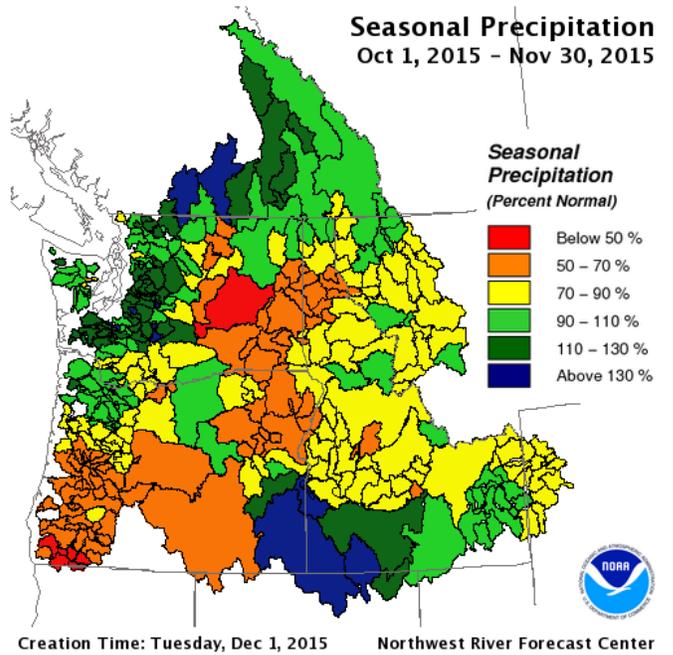
nwrfc.noaa.gov/WAT_RES_wy_summary/20151201/CurMonMAT_2015Nov30_2015120116.png

prism.oregonstate.edu/

Current Month Precipitation
Nov 1, 2015 - Nov 30, 2015



Seasonal Precipitation
Oct 1, 2015 - Nov 30, 2015



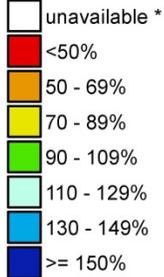
nwrfc.noaa.gov/WAT_RES_wy_summary/20151201/CurMonMAP_2015Nov30_2015120116.png

nwrfc.noaa.gov/WAT_RES_wy_summary/20151201/SeasonalMAP_2015Nov30_2015120116.png

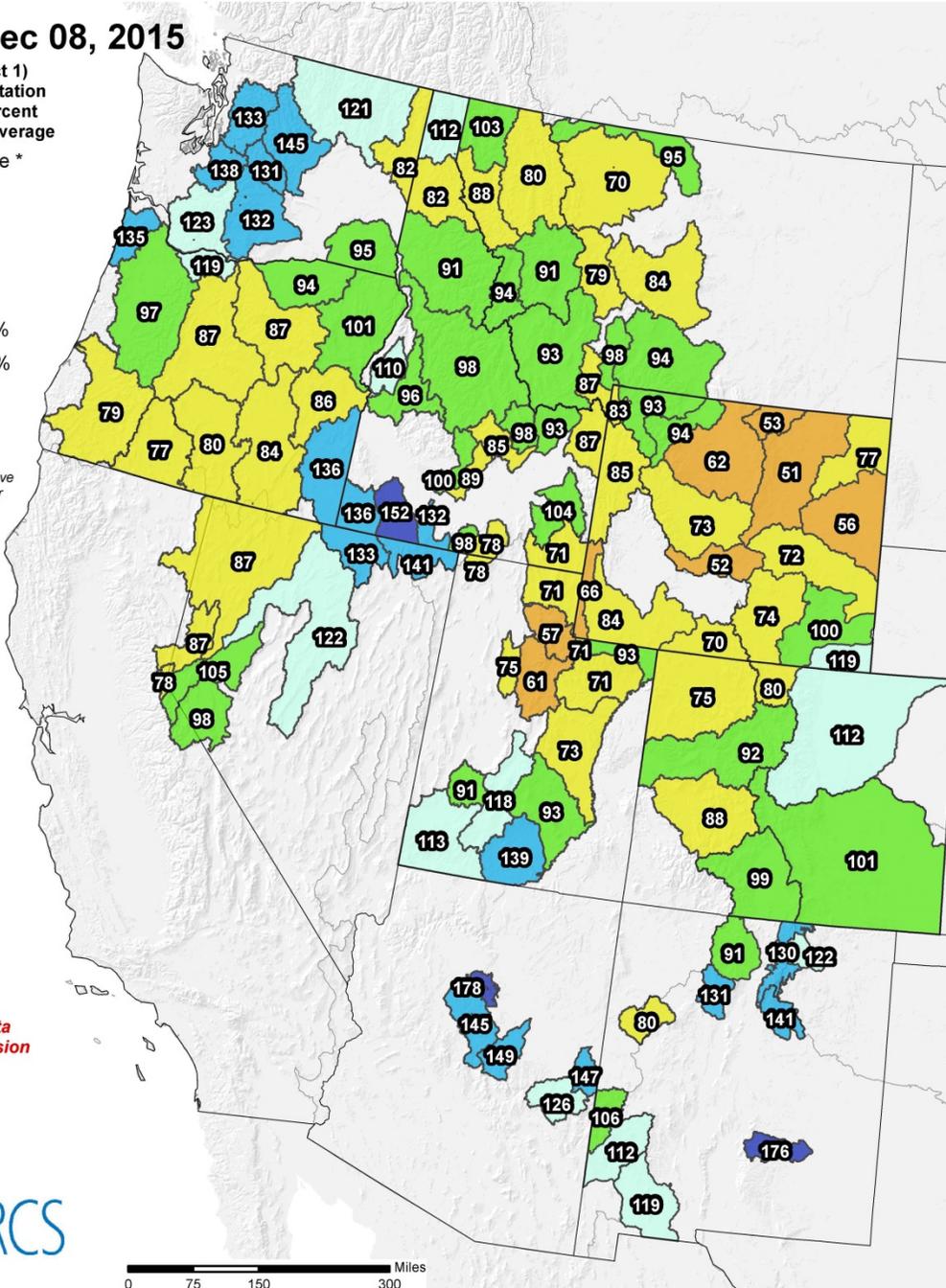
Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Dec 08, 2015

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average



* Data unavailable at time of posting or measurement is not representative at this time of year



Provisional data subject to revision



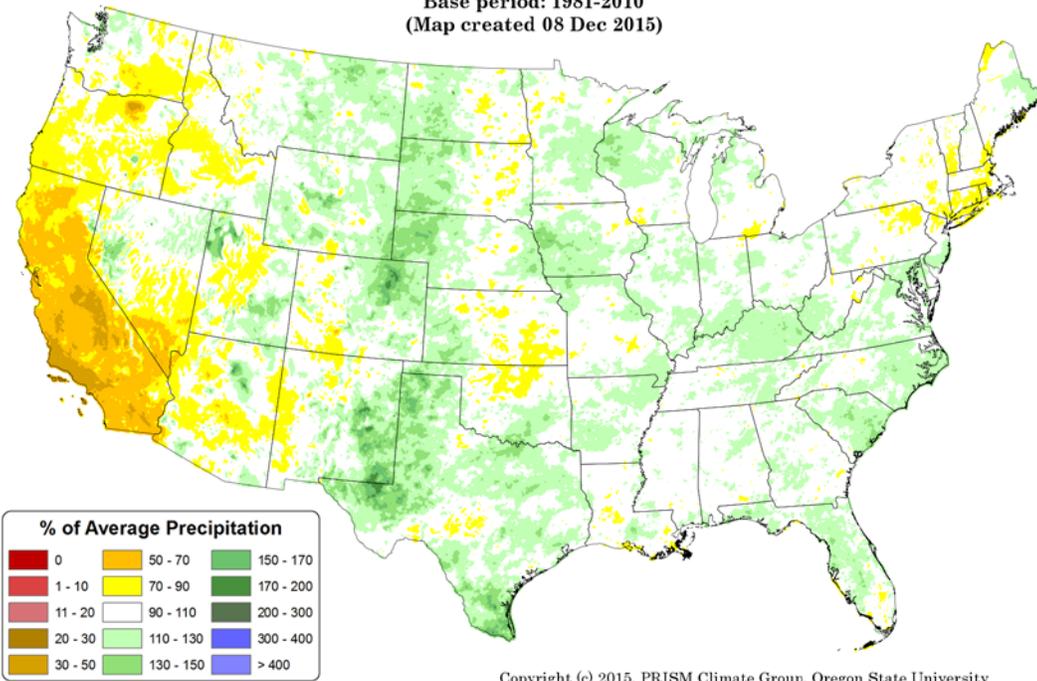
The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>

wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_wytdprecptnormal_update.pdf

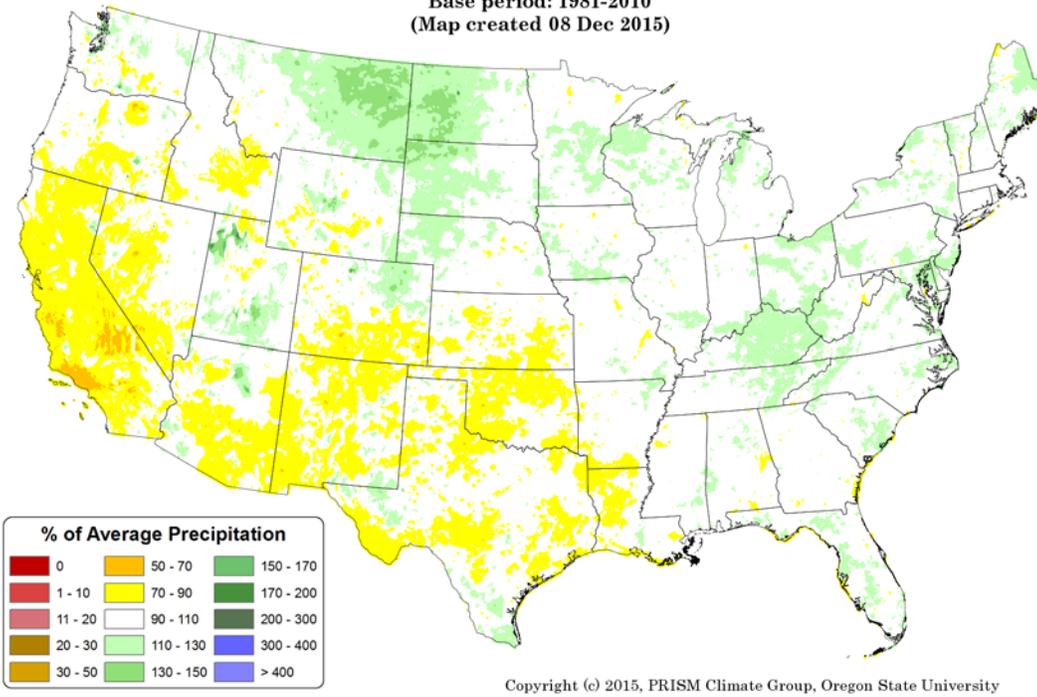
Past 2 Years of Precipitation % of Average:

Total Precipitation Anomaly: December 2013 - 07 December 2015
Period ending 7 AM EST 07 Dec 2015
Base period: 1981-2010
(Map created 08 Dec 2015)

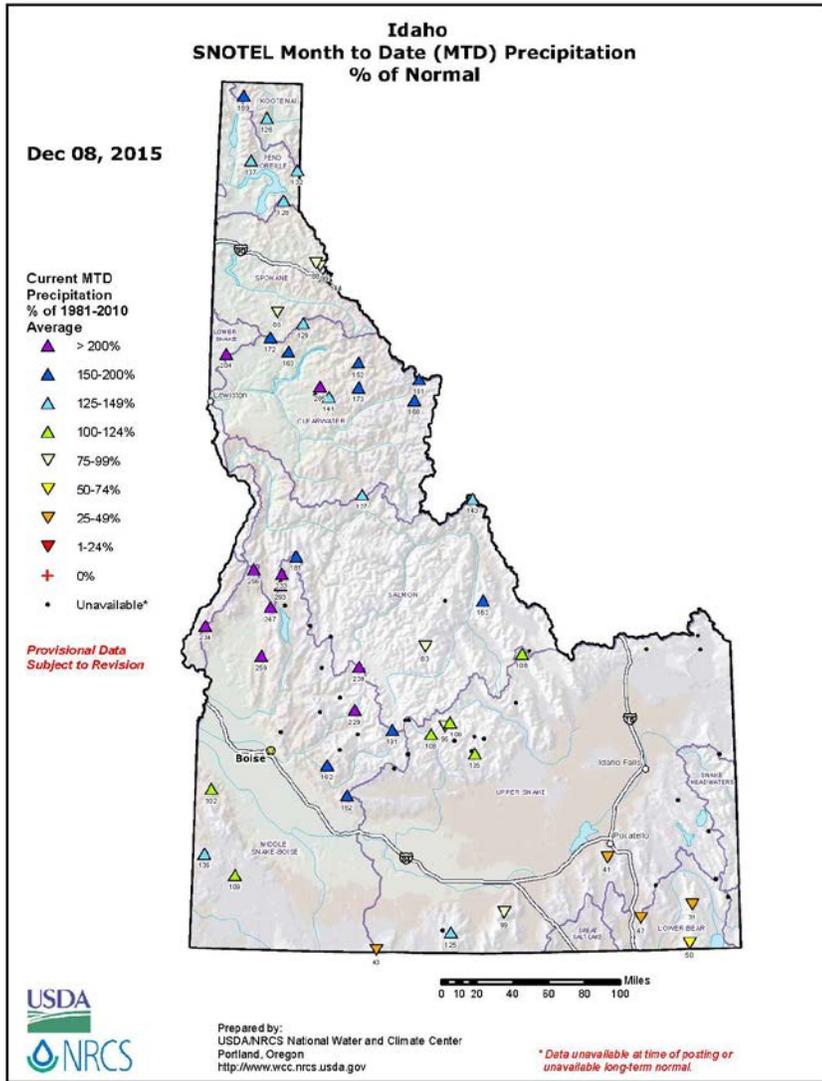


Past 6 Years of Precipitation % of Average:

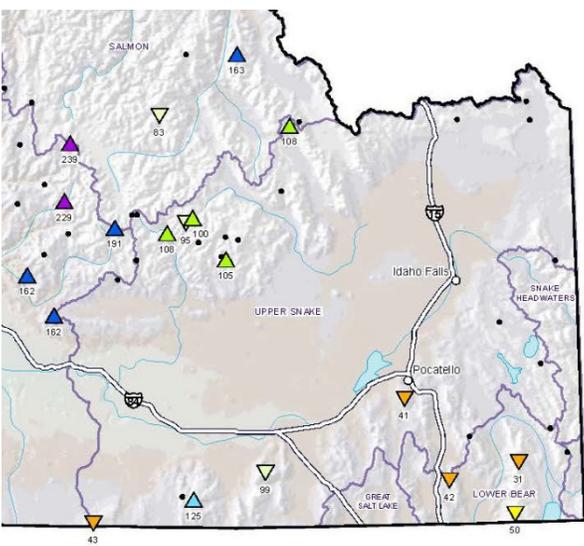
Total Precipitation Anomaly: December 2009 - 07 December 2015
Period ending 7 AM EST 07 Dec 2015
Base period: 1981-2010
(Map created 08 Dec 2015)



prism.oregonstate.edu/comparisons/drought.php



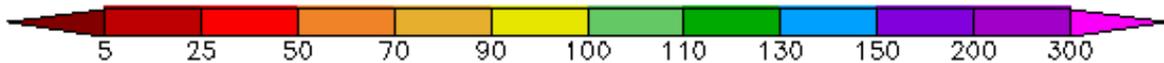
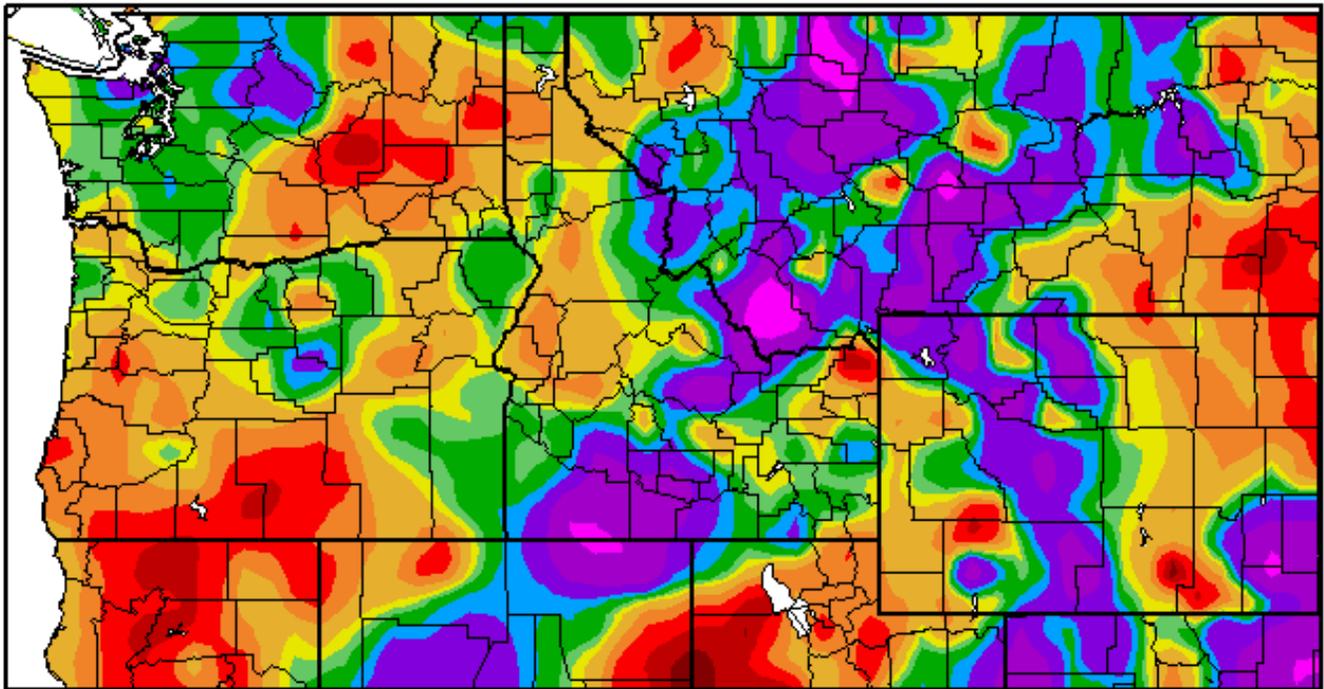
wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_mtdprecptnormal.pdf



**SNOTEL MTD % of Normal
Precipitation for end of November 2015**
(image is cropped from above image)

November was good to the south central Idaho area and parts of eastern Idaho as far as precipitation goes. Parts of Custer, Lemhi and Oneida counties received over 150% of normal precipitation. Across the HSA, the majority of the area received near normal precipitation last month. The Henrys Fork and upper Snake were fairly dry last month. The Pacific Northwest was both dry and near normal last month, but areas of MT, ID, UT, NV, WY and CO received much needed above average moisture. In eastern Idaho the benefitting counties for precipitation were: Lemhi, Custer, Butte, Oneida, Bonneville, Cassia, Minidoka, Jerome and Lincoln.

Percent of Normal Precipitation (%) 11/1/2015 – 11/30/2015



Generated 12/5/2015 at HPRCC using provisional data.

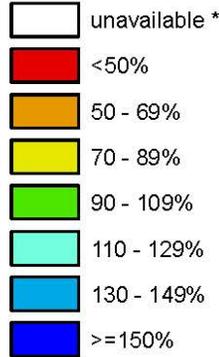
Regional Climate Centers

hprcc.unl.edu/maps.php?map=ACISClimateMaps

Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal

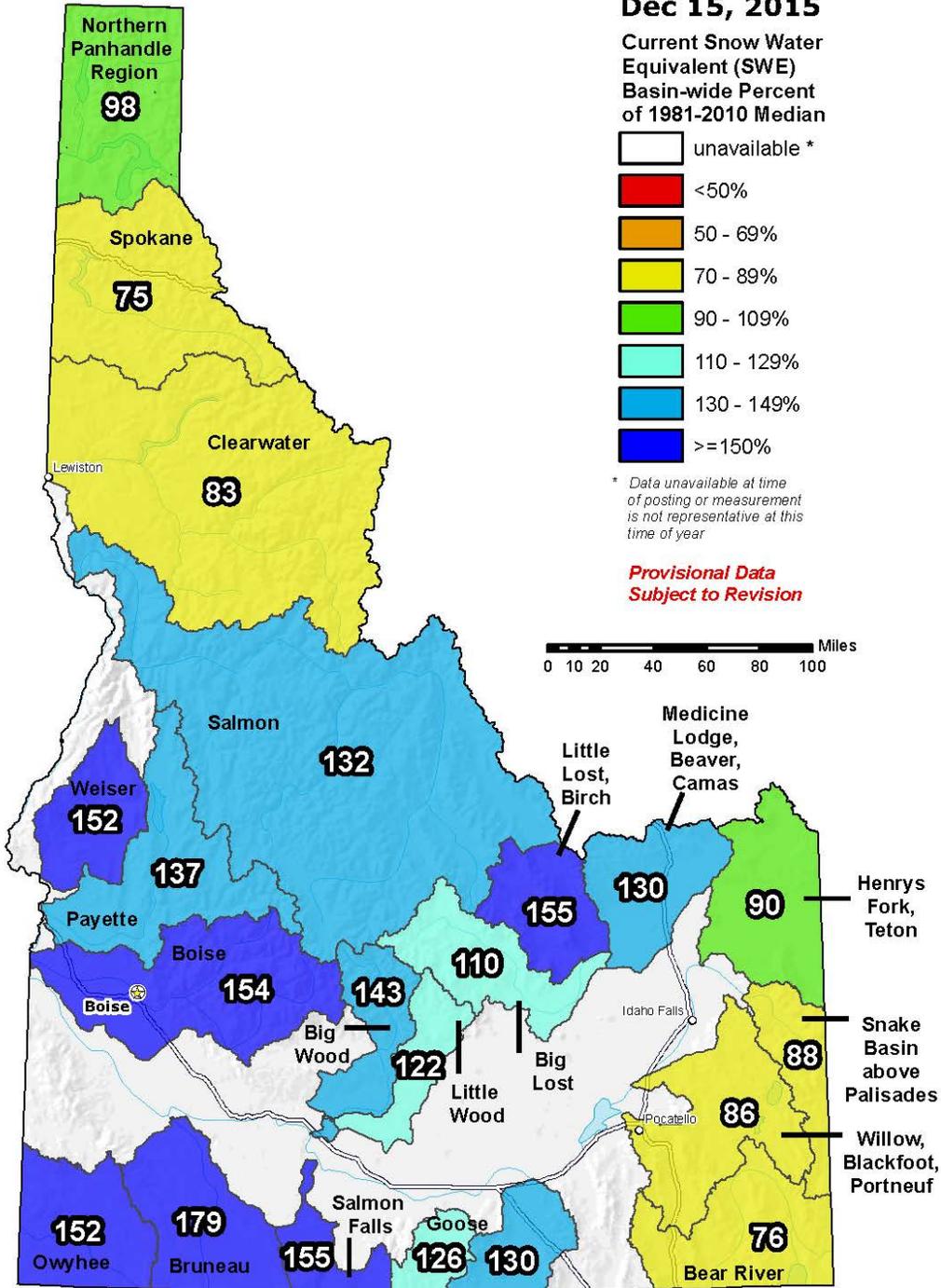
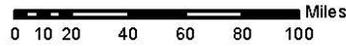
Dec 15, 2015

Current Snow Water Equivalent (SWE)
Basin-wide Percent of 1981-2010 Median



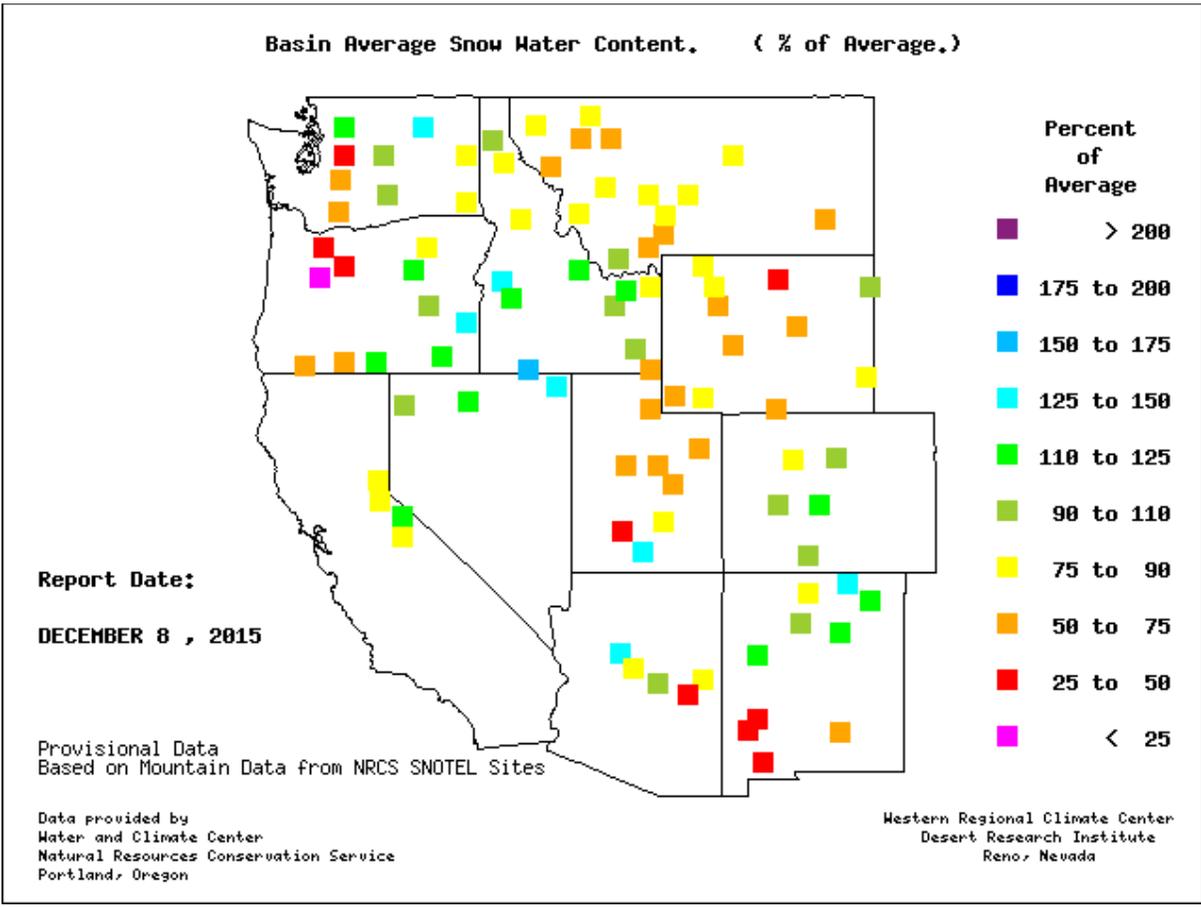
* Data unavailable at time of posting or measurement is not representative at this time of year

*Provisional Data
Subject to Revision*

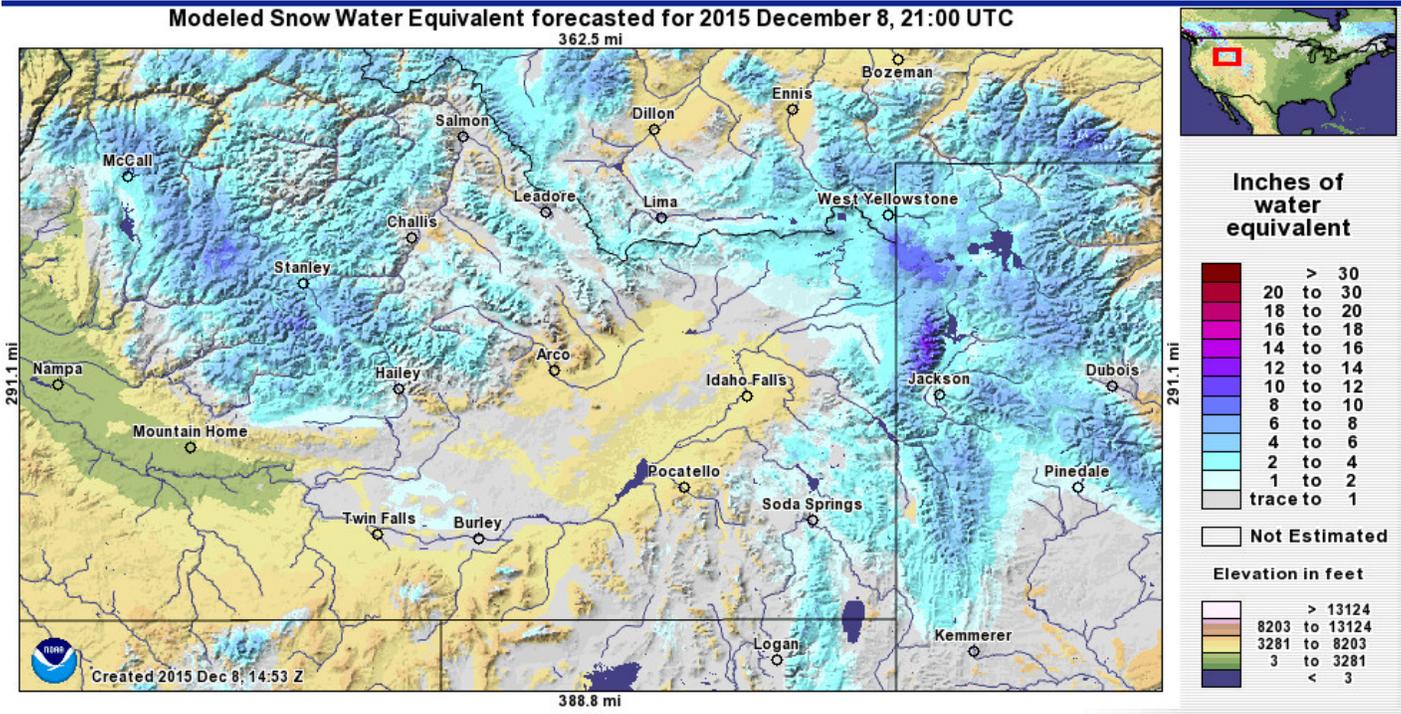


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:
USDA/NRCS National Water and Climate Center
Portland, Oregon
<http://www.wcc.nrcs.usda.gov>



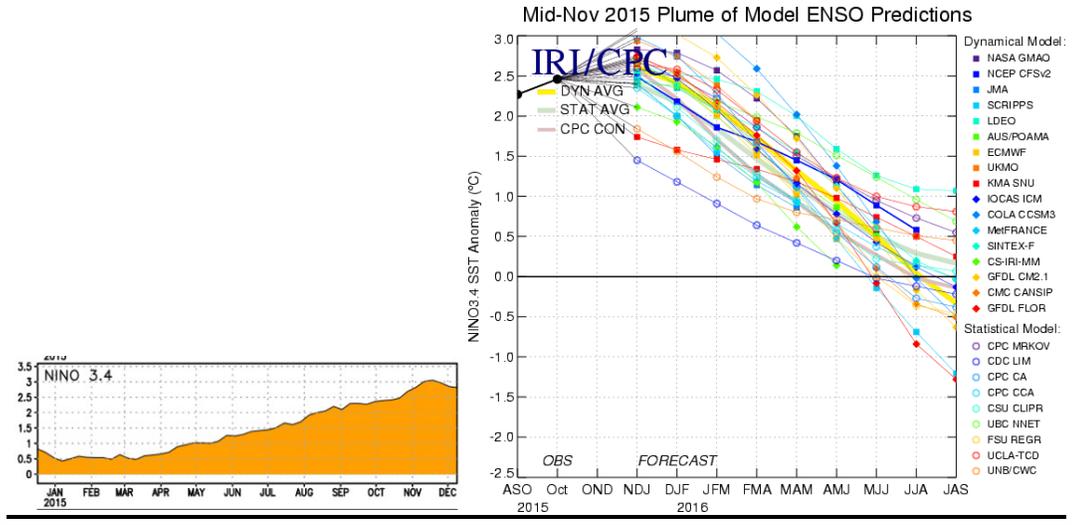
wrcc.dri.edu/snotelanom/basinswe.html



nohrsc.noaa.gov/interactive/html/map.html

ENSO Update:

Latest Observed SST Departure: Niño 3.4 ~ 2.8 Deg C



cpc.ncep.noaa.gov, iri.columbia.edu/climate/ENSO and cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf

CPC Synopsis: El Niño conditions are present. El Niño conditions continue to remain strong in the Northern Hemisphere for winter 2015-16 with a transition to Neutral conditions late spring/early summer.

Note: Positive equatorial sea surface temperature (SSTs) anomalies continue across most of the Pacific Ocean. MJO remains incoherent during the past week. The Pacific Decadal Oscillation (PDO) is currently positive.

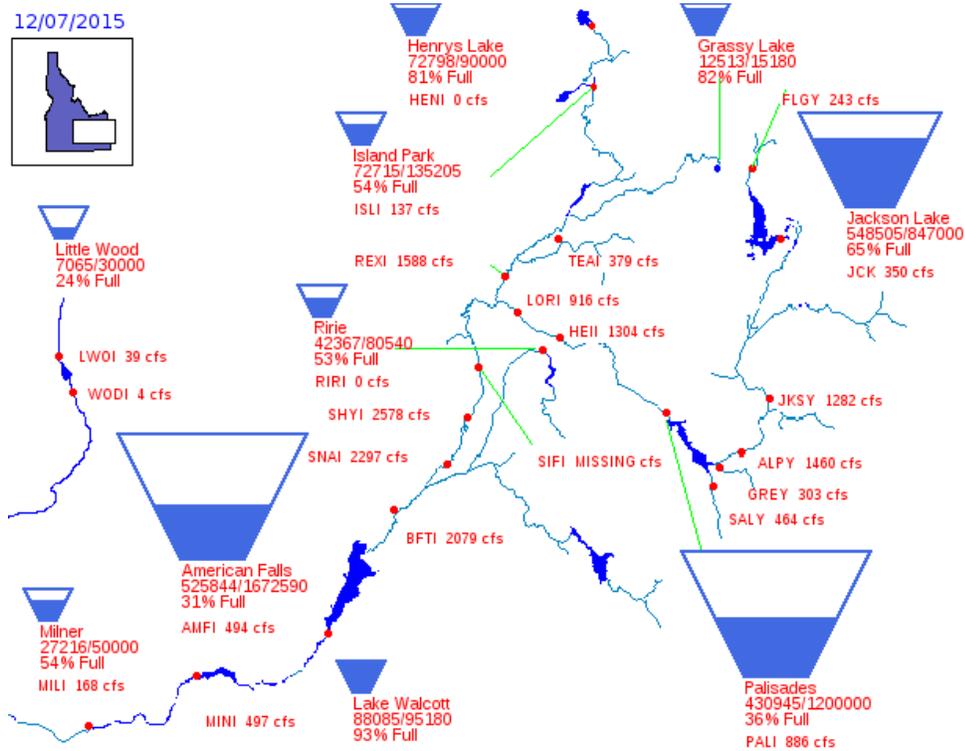
Reservoirs:

Reservoir	% Capacity October 31 ¹	% Capacity November 30 ²	Percent Change	% of Average ²	% of Average Last Year ²
Jackson Lake	64	65	1	131	155
Palisades	36	44	8	73	107
Henrys Lake	78	80	2	93	111
Island Park	40	52	12	83	109
Grassy Lake	81	82	1	109	107
Ririe	50	52	2	124	122
Blackfoot	44	47	3	96	91
American Falls	14	28	14	63	97
Mackay	20	39	19	105	112
Little Wood	14	22	8	59	62
Magic	10	13	3	43	46
Oakley	10	13	3	55	68
Bear Lake	36	35	-1	77	91
Lake Walcott	93 ³	93 ⁴	0	n/a	n/a
Milner	65 ³	54 ⁴	-11	n/a	n/a

Source: (1) NRCS October 31, 2015; (2) NRCS November 30, 2015. (3) US Bureau of Reclamation (BOR) November 4, 2015 (4) BOR December 7, 2015

wcc.nrcs.usda.gov/ftpref/support/water/SummaryReports/ID/BRes_12_2015.pdf

12/07/2015

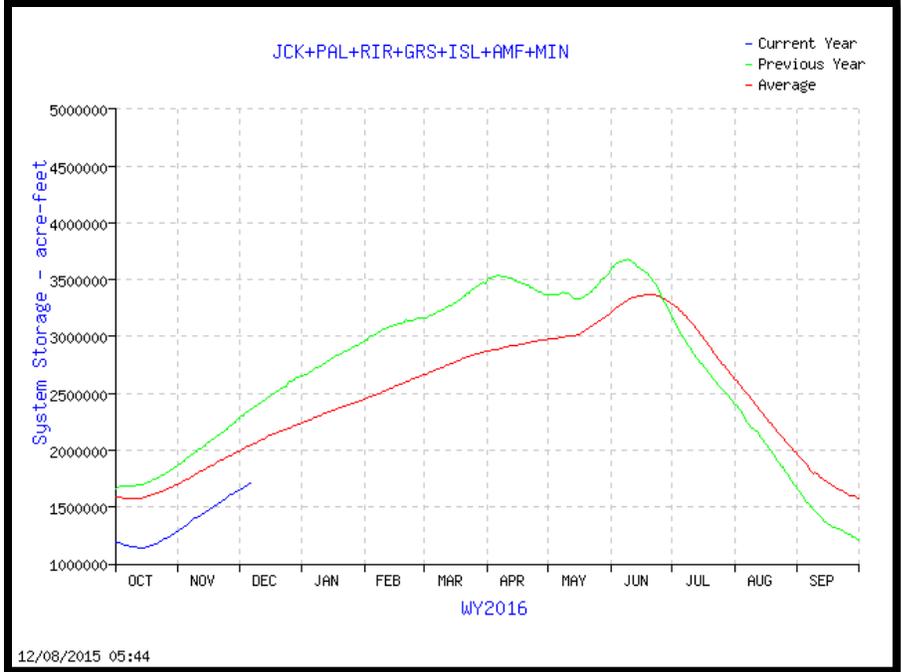


43% of Capacity in Upper Snake River System
 (Jackson Lake, Palisades, Grassy Lake, Island Park, Ririe, American Falls & Lake Walcott)

usbr.gov/pn/hydromet/burtea.html

Upper Snake River:
 Total Space Available: 2,324,721 AF
 Total Storage Capacity: 4,045,695 AF

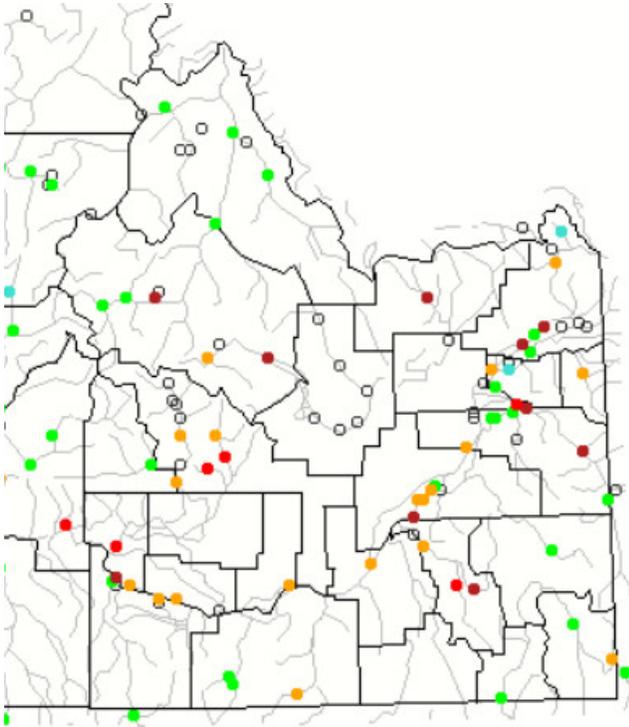
Graph of Upper Snake River Current Total System Reservoir Storage



usbr.gov/pn-bin/graphwy2.pl?snasys_af

Streamflow:

Monthly average streamflow compared to historical average streamflow for November 2015.



waterwatch.usgs.gov/?m=mv01d&r=id&w=map

Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

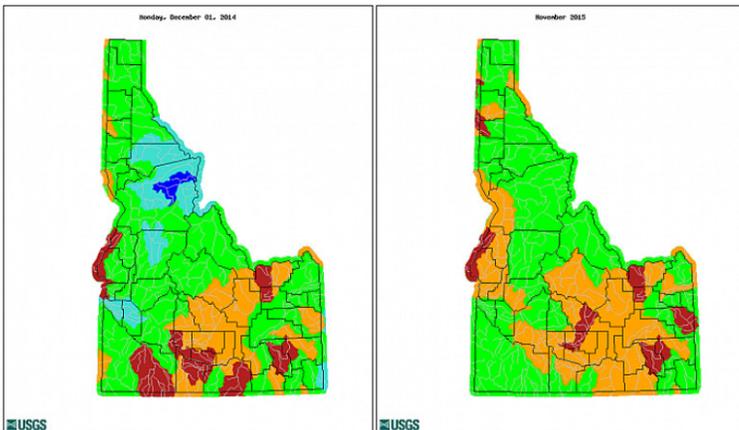
Comparison of Streamflow Maps

Geographic area: Water resource region: GO

Map type: Sub type:

Date (YYYYMM):

Date (YYYYMM):



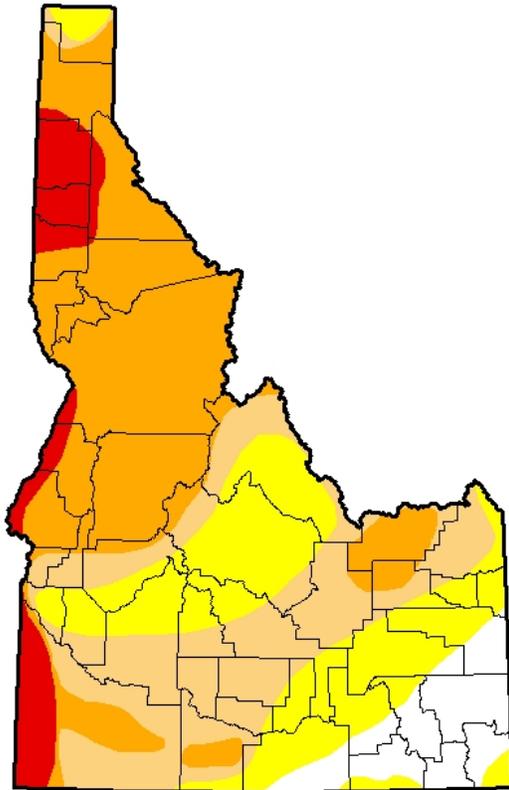
waterwatch.usgs.gov/index.php

Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	No Data

Drought:

**U.S. Drought Monitor
Idaho**

December 8, 2015
(Released Thursday, Dec. 10, 2015)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	8.63	91.37	66.76	42.06	7.68	0.00
Last Week <i>12/1/2015</i>	8.63	91.37	67.45	42.15	8.38	0.00
3 Months Ago <i>9/6/2015</i>	0.00	100.00	91.93	48.09	29.26	0.00
Start of Calendar Year <i>12/02/2014</i>	23.76	76.24	41.73	18.49	3.40	0.00
Start of Water Year <i>9/29/2015</i>	0.00	100.00	85.59	47.55	29.26	0.00
One Year Ago <i>12/9/2014</i>	21.08	78.92	44.14	19.49	3.53	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

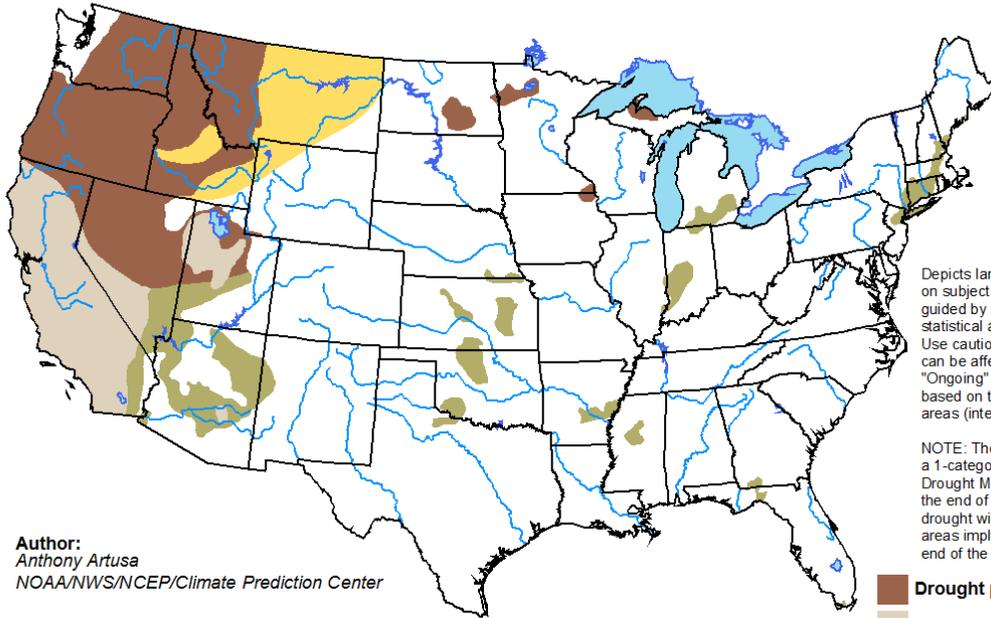
Author:

Richard Tinker
CPC/NOAA/NWS/NCEP



<http://droughtmonitor.unl.edu/>

U.S. Seasonal Drought Outlook Valid for November 19 - February 29, 2016
 Drought Tendency During the Valid Period Released November 19, 2015



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

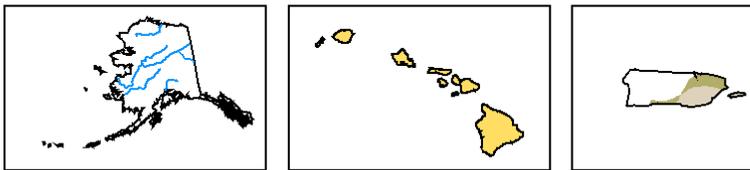
NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
 Anthony Artusa
 NOAA/NWS/NCEP/Climate Prediction Center

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



<http://go.usa.gov/3eZ73>



cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png

- cc:
- Mike Schaffner, Western Region HCSD
 - Joe Intermill, Hydrologist-in-Charge, Northwest River Forecast Center
 - Steve King, Development and Operations Hydrologist, Northwest River Forecast Center
 - Michelle Stokes, Hydrologist-in-Charge, Colorado Basin River Forecast Center
 - Greg Smith, Acting Service Coordination Hydrologist, Colorado Basin River Forecast Center
 - John Lhotak, Development and Operations Hydrologist, Colorado Basin River Forecast Center
 - Hydrometeorological Information Center
 - Dean Hazen, Meteorologist-in-Charge, Pocatello, Idaho
 - Dawn Harmon, Acting Science and Operations Officer, Pocatello, Idaho
 - Vern Preston, Warning Coordination Meteorologist, Pocatello, Idaho
 - Troy Lindquist, Senior Service Hydrologist, Boise, Idaho
 - Brian McInerney, Senior Service Hydrologist, Salt Lake City, Utah
 - Kevin Berghoff, Senior Hydrologist, Northwest River Forecast Center
 - Taylor Dixon, Hydrologist, Northwest River Forecast Center
 - Brent Bernard, Hydrologist, Colorado Basin River Forecast Center
 - PIH Mets/HMT's (pih.ops)

End
 cbl